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Social Interactions of Preschoolers With and Without Impaired Hearing in Integrated Kindergarten

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This study investigated the social competence of children with normal hearing (n = 10) and children with impaired hearing (n = 10) who attended an integrated preschool program for 4 to 5 year olds. The study compared the social interactions of the two groups of participants both in sociodramatic play and nonplay activities, their entry behaviors and relative success rates. Entry behaviors were associated both with the hearing status of participants and with the type of activity. The children with normal hearing were more likely initially to survey the group (particularly in sociodramatic play) and then to use behaviors that either oriented themselves to the group's activity or referenced the group to themselves. The children with normal hearing were more successful in gaining entry, particularly to nonplay activities.

Significant congenital hearing impairment has been shown to limit children's social experiences and the development of social competence (Antia, 1982; Lederberg, 1991; Levy-Shiff & Hoffman, 1985; Vandell & George, 1981). As a consequence, early intervention programs for children with impaired hearing not only address the communication needs of children but also provide intervention in the development of social competence. In many early intervention programs, an effort to address communication and social goals involves including children with impaired hearing into regular preschool environments where they can play and engage in structured activities with typically developing children. This approach is based on the assumption that inclusion will lead to frequent opportunities for peer interaction (Brinker & Thorpe, 1986), exposure to a range of interactional behaviors

typical of age-matched peers, and opportunities for the child to practice emerging skills (Antia, 1985). Nevertheless, research continues to suggest that children with impaired hearing consistently experience difficulties in maintaining social interactions with their peers (Antia, 1982; Arnold & Tremblay, 1979; Brackett & Henniges, 1976; Lederberg, 1991; Lederberg, Ryan & Robbins, 1986; Levy-Shiff & Hoffman, 1985; Remine, 1996).

Studies of young children (both with and without disabilities), have contributed to the identification of a range of abilities that underpin social competence. Based on this research, a three-stage model of social competence (surveillance, entry, and maintenance) has been developed (Dodge & Price, 1994; Parmenter & Hurworth, 1988; Rose-Krasnor, 1985). In the first stage of the model, surveillance, children spend time surveying the be-

haviors of others (Corsaro, 1979; Dodge, Schlundt, Schocken & Delugach, 1983; Putallaz & Wasserman, 1990). This appears to establish a frame of reference so that children can orient their behaviors to those of others with whom they wish to interact. In the second stage, children devise a strategy for gaining entry, then select and use a behavior, or sequence of behaviors, they believe will be successful (Corsaro; Dodge et al.; Guralnick, 1993; Putallaz & Gottman, 1981a, 1981b; Putallaz & Wasserman; Roberts, Brown & Rickards, 1996). The ability to take note of the ongoing group activity and to select an appropriate behavior from one's existing repertoire is critical to success in gaining entry (Corsaro; Putallaz & Wasserman; Ross & Rogers, 1990). Children who do not take time to survey the group are judged impulsive and show less success than non-impulsive children at gaining entry to their peer group (Attili, 1990). In the third stage of the model, maintenance, children attempt to maintain their involvement in the social activity by using a range of behaviors having a high probability of sustaining the activity. Children who are successful at the third stage, are generally considered socially competent (Guralnick, 1992; Wright, 1980).

Investigations of children's social competence have focused mainly on attempts to enter and maintain sociodramatic play activities (Black & Hazen, 1990; Dodge et al., 1983; Forbes, Katz, Paul & Lubin, 1982). Children who are successful in gaining entry establish the frame of reference and then orient their entry behavior to the group's activity. It is likely that these children are sensitive to differences between sociodramatic play and nonplay resulting in the use of different entry behaviors according to the context. Some evidence for this comes from a study by de Lorimier, Doyle, and Tessier (1995) who found that preschool-aged girls used different maintenance behaviors according to whether the group was engaged in sociodramatic play or nonplay.

Most studies of social competence of preschool children with impaired hearing have focused on the maintenance stage (Antia,

1982; Arnold & Tremblay, 1979; Brackett & Henniges, 1976; Lederberg, 1991; Lederberg et al., 1986; Levy-Shiff & Hoffman, 1985) and the precursory stages of surveillance and entry are not well researched. One study, however, found when children with profound hearing impairment were not actively interacting with their peers, they spent more than half of their time watching others (Levy-Shiff & Hoffman, 1985). These authors concluded that the children were socially interested but lacked the skills to enter and maintain interaction. Alternatively, the children may have been in the surveillance stage and trying to establish a frame of reference prior to attempting entry. Remine (1996) investigated surveillance by examining children's wait-and-hover behaviors that were the initial behavior in an entry strategy. Results showed that children with normal hearing used this behavior in the surveillance context more frequently than did the children with impaired hearing. When unsuccessful in gaining entry, children with normal hearing continued to maintain a higher frequency of wait-and-hover behavior. The study provided further support for the hypothesis that children with impaired hearing lack the skill to generate an entry strategy.

The few studies that have focused on children with impaired hearing in the entry stage of the model have yielded varied results. Messenheimer-Young and Kretschmer (1994) report a case study of a child who used a range of entry behaviors similar to those of his peers with normal hearing, however, his use of request-for-access behavior was predominant. Roberts et al. (1996) investigated the behaviors of 12 children with impaired hearing and 30 children with normal hearing as they attempted to gain entry to the home corner of a kindergarten. Results showed that, for this area of the kindergarten, there was no difference in the range of behaviors used by the two groups. This study, however, did not differentiate among children with mild, moderate, severe, and profound hearing impairment. A comparative study by Remine (1996), investigated the entry behaviors into sociodramatic play of ten children with normal hearing and a matched group of children with profound

hearing impairment. For the latter group, Remine reported fewer entry behaviors and a restricted range of behaviors. These results suggest that children with impaired hearing may be less willing to risk an entry attempt into sociodramatic play. Several other studies also have made this suggestion (Brown, Rickards & Jeanes, 1992; Darbyshire, 1977; Higginbotham & Baker, 1981). Entry behaviors of children with impaired hearing into nonplay contexts, however, have received little attention.

The most frequently studied aspect of the social competence of preschool-aged children with impaired hearing has been of the quantity and duration of their interactions once entry has been gained. Children with a profound hearing impairment have been shown consistently to engage in fewer peer interactions when compared to their counterparts with normal hearing (Antia, 1982; Arnold & Tremblay, 1979; Vandell & George, 1981). Further, these interactions have been reported to be of shorter duration (Levy-Shiff & Hoffman, 1985; Remine, 1996), and to be confined mainly to interactions with children with similar hearing status (Arnold & Tremblay; Levy-Shiff & Hoffman; Remine & Brown, 1996; Vandell & George). What is not clear, however, is whether these reported differences in quality and duration of interactions arise from difficulties establishing the frame of reference of the peer group during surveillance, difficulties using appropriate entry behaviors, or a combination of these two factors.

Our study reports on of the entry behaviors of children with impaired hearing. We compared behaviors of these children and their peers with normal hearing when they were attempting to engage in the regular range of kindergarten activities including sociodramatic play and nonplay. The relative success rates of the entry behaviors were evaluated for both groups of children for the two types of activity.

METHOD

Participants

Ten children with normal hearing and 10 children with a profound hearing impairment,

matched as closely as possible on age ($M = 56$ months, range 49–63 months) and gender (five males and five females in each group) participated in this study. All children had parents with normal hearing and English was the first language of the home. The children attended the same integrated kindergarten program. Details of participants appear in Table 1.

Children with impaired hearing. The 10 participants in this group were selected from a cohort of children for whom routine videotaped samples had been collected as part of a regular assessment and research protocol. All children in the group met eligibility criteria and had an unaided 5-frequency pure tone average (PTA) of greater than 85 dBHL in the better ear measured at 250-, 500-, 1000-, 2000- and 4000 Hz. Nine children used hearing aids and one used a cochlear implant. All children had been diagnosed in the first 18 months of life and fitted with hearing aids within 8 weeks of the diagnosis. None of the children had any additional identified disability at the time of the study. The PTAs and etiologies of hearing loss for these children are given in Table 1. All children were involved in an auditory-oral program and none used sign.

Nine children, on whom nonverbal IQ scores were available, were functioning within normal range. Teacher report indicated the remaining child also was of average ability. Based on formal language tests, seven children had a delay of at least 12 months and the severe language delay of the remaining three participants precluded formal language testing. Also shown in Table 1 are the nonverbal IQ and language functioning assessment information for this group of children.

Children with normal hearing. The 10 participants in this group were selected to achieve pair-matching on the basis of age and gender. In addition, children in this group were identified as functioning within the normal range for language and intelligence (as reported by their teacher) and had no other disabling conditions.

Setting

The participants attended a 4-year-old group in the integrated auditory-oral kindergarten

Table 1.
Participant Details

Participants with Normal Hearing			Participants with Impaired Hearing						
Sub- ject	Age (in years)	Gender	Subject	Age (in years)	Gender	PTA* (dBHL)	Etiology	Intelligence Assessment	Language Assessment
H1	5.0	M	D1	5.2	M	85	Familial	WPPSI	PLSAC
H2	5.2	M	D2	5.1	M	100	Unknown	***	***
H3	4.8	M	D3	4.9	M	100	Unknown	MPSMT	RDLSAC
H4	4.1	M	D4	4.1	M	95	Rubella	SB	RDLSAC
H5	5.3	M	D5**	5.1	M	120	Unknown	WPPSI	***
H6	4.6	F	D6	4.5	F	90	Unknown	WPPSI	PLSAC
H7	4.7	F	D7	5.0	F	106	Unknown	MSCA	PLSAC
H8	5.2	F	D8	5.3	F	102	Rubella	WPPSI	PLSAC
H9	4.1	F	D9	4.5	F	108	Familial	MPSMT	RDLSAC
H10	4.1	F	D10	4.1	F	106	Unknown	MPSMT	***

Note: * = Pure Tone Averages (unaided) for frequencies at 250, 500, 1000, 2000 and 4000 Hz, ** = cochlear implant, *** = no formal testing.

WPPSI = Wechsler Preschool and Primary Scale of Intelligence, MPSMT = Merrill Palmer Scale of Mental Tests, SB = Stanford Binet Intelligence Test, MSCA = McCarthy Scales of Children's Abilities, PLSAC = Preschool Language Scale of Auditory Comprehension, RDLSAC = Reynell Developmental Language Scale of Auditory Comprehension.

program for four half-day sessions each week. In Victoria, Australia, the term kindergarten is used to refer to educational programs provided prior to school entry. The primary mode of communication was spoken language, and none of the children or teachers used a manual supplement (e.g., Auslan or Signing Exact English). A teacher of the deaf was present for all sessions and worked alongside the children in the classroom. Occasionally, children with impaired hearing were withdrawn for specialist group or individual work. The 20 participating children were selected from 13 kindergarten groups in which the ratio of children with normal hearing to children with impaired hearing was 4:1. The children with impaired hearing had previously attended kindergarten for 3-year-olds. In addition to the teacher of the deaf, one kindergarten teacher and one assistant were present for all sessions.

Procedure

During the final term of the school year, participants were videotaped on three separate occasions at approximately 1-month intervals. Videotaping began when children entered the kindergarten room and continued for 50 minutes. Two remote-controlled cameras were op-

erated from a small observation room, which provided visual access to all areas of the classroom except the bathroom, a quiet room area, and the outdoor area. A radio microphone and transmitter were worn by the target child, allowing for the recording of speech without inhibiting the free movement of the child. This recording system had the same physical appearance as the radio frequency systems worn by the children with impaired hearing and drew little attention from the other children.

Coding

Videotapes were simultaneously time coded. To provide children with a warm-up period, coding began 10 minutes after the start of videotaping. The remaining 40 minutes of each videotaped session was coded for a total of 120 coded minutes per child. Entry behaviors, partner responses, and types of activity were coded.

Entry behaviors, partner responses and types of activity. Entry behaviors and partner responses were event coded and categorized according to the scheme used by Roberts et al. (1996) and shown in Table 2. All child attempts to enter into an activity with one or more peers were coded. A successful attempt

Table 2.
Definitions of Entry Behaviors and Response Categories for Sociodramatic play and Nonplay Activities

Code Term	Definition
Entry Behavior	
<i>Request/Suggest Access</i>	Verbally or nonverbally requests/suggests access
<i>Join In</i>	Joins into the ongoing activity of another child and discusses actions, objects, setting, or role and/or enacts roles or uses materials
<i>Wait and Hover</i>	Waits and circles, observing the activity of another child. There is no interaction with the child
<i>Group Activity Related Utterance/Action</i>	Seeks or gives information about the activity, expresses agreement, compliance or pleasure, imitates actions, obtains or gives materials, or expresses interest in the activity of another child
<i>Utterance/Action not Related to Group Activity</i>	Greets partner, comments on affiliation, comments on future or past events, or touches the child
<i>Self-Referenced Utterance/Action Related to Group Activity</i>	Verbally or nonverbally suggests a role for him/herself, objects, materials or actions
<i>Self-Referenced Utterance/Action not Related to Group Activity</i>	Talks about feelings, possessions, plans, accomplishment, attributes, past or future events and/or displays or offers materials not related to the activity
<i>Disruption</i>	Exhibits a verbal or nonverbal behavior which is aversive and which interrupts and/or disrupts the activity
<i>Request for Help</i>	Verbally or nonverbally requests the help of another child and brings, or uses them, as an agency for access
<i>Reference to Rules</i>	Attempts to enter on the basis of an established rule
<i>Other</i>	All other utterances which are judged to be entry behaviors but cannot be categorized under any of the above categories
Partner Responses	
<i>Accept</i>	Verbally or nonverbally accepts an incoming player. No attempt is made to stop the newcomer using materials or joining in the activity
<i>Ignore</i>	There is no response to the newcomer. There may be visual recognition. The entry tactic may be acknowledged but it does not facilitate the incoming players entry into the activity
<i>Reject</i>	Verbally or nonverbally attempts to prevent the newcomer from entering into the activity

was one in which the target child was accepted by another child resulting in the child's participation in the activity. An ignored or rejected attempt was judged as unsuccessful. If the child left the activity and attempted to enter a new activity it was coded as a new attempt. Further, all activities that the child attempted to enter were coded as either sociodramatic play or nonplay. Sociodramatic play activities were those in which at least one child transformed or invented an object or setting, adopted a role, or enacted a script (Brown, 1997). Typically, these activities took place in the home corner or block area of the

kindergarten. The remaining activities were coded as nonplay and were, for example, collage, puzzles, and art. The number and type of entry behaviors used, their respective rates of acceptance, and the duration of engagement in all interactions were calculated.

Intercoder Agreement

Two coders were trained using nonexperimental data to a criterion of 70% or higher agreement with the first author for occurrence and categorization of the entry behaviors (coder 1 = 80%, coder 2 = 73%) and responses (coder 1 = 92%, coder 2 = 77%). Percentage agree-

ment was calculated using the number of agreements divided by the number of agreements plus non-agreements. Coder 1 then coded all experimental data. To assess intercoder agreement, coder 2 categorized 25% of the experimental data for both groups of children for the entry behavior and partner response categories from samples taken across all subjects and sessions both for sociodramatic play and nonplay activities. To obtain agreement, each coder had to agree on the occurrence of a behavior, the code category and the time of onset of the behavior within two seconds of the other coder. Where incidence was low, entry behavior categories were combined as specified below. Cohen's kappa (Siegel & Castellan, 1988) was used to assess the degree of agreement for occurrence and nonoccurrence between the coders. Percentage agreement for the combined sociodramatic play and nonplay entry behaviors request access and join in was 98% ($k = .82$). Percentage agreements for the remaining sociodramatic play entry behaviors were 92% for wait and hover ($k = .67$), 88% for group activity related utterance/action ($k = .66$), 95% for utterance/action not related to group activity ($k = .82$), 98% for self-referenced utterance/action related to group activity, self-referenced utterance/action not related to group activity, disruption, request for help, and reference to rules ($k = .72$). For the remaining nonplay entry behaviors, percentage agreements were 100% (wait and hover), 89% (group activity related utterance/action; $k = .77$), 93% (utterance/action not related to group activity; $k = .73$), 95% (self-referenced utterance/action related to group activity; $k = .83$), and 99% (self-referenced utterance/action not related to group activity, disruption, request for help, and reference to rules; $k = .81$).

For the partner response categories, the percentage agreements for the sociodramatic play context were 93% ($k = .84$) for accept, 86% ($k = .72$) for ignore, and 97% ($k = .71$) for reject. For the nonplay response categories, percentage agreements were 86% ($k = .68$) for accept, 87% ($k = .75$) for ignore, and 96% ($k = .78$) for reject. It should be noted that the number and duration of sessions some-

times places restrictions on the generalizability of the results (McWilliam & Ware, 1994).

Data Analysis

A series of Chi-square statistics was used to investigate the relationship, if any, between the entry behaviors used, the hearing status of the group and the type of activity the child was trying to enter. First, initial comparisons were made between the distributions of entry attempts of the two groups of children to sociodramatic play and then to nonplay activities. A second statistic was performed to compare each group's entry behaviors according to the type of activity. Third, we investigated the association between hearing status of the group and type of activity for use of the wait and hover category.

RESULTS

The distributions of entry behaviors used by the target children were compared in sociodramatic play and non-play activities. Table 3 shows both the number, and percentage, of each behavior used by the children as they attempted to gain access to these two types of activity. Chi-square analyses showed a statistically significant association between hearing status of the group and distribution of entry behaviors for sociodramatic play $\chi^2 (9, N = 266) = 33.40, p < .001$ and nonplay $\chi^2 (8, N = 539) = 76.78, p < .001$. There were two major differences between these two distributions of entry behaviors into sociodramatic play. First, in spite of the fact that both groups of children most frequently used group activity related utterance or action to gain entry to sociodramatic play activities, the children with impaired hearing were more likely to use this type of behavior than were the children with normal hearing. Second, the children with impaired hearing were less likely to use either of the two behaviors that referenced themselves to the group's activity than were the children with normal hearing. For entry into nonplay activities, five differences between the distributions were apparent. While the group activity related utterance or action behavior was again the most frequently used

Table 3.

The Distribution of Entry Behaviors Used by Children with Normal Hearing (NH) and Impaired Hearing (IH) in Sociodramatic play (SDP) and Nonplay (NP) Activities

Entry Behavior	NH				IH			
	SDP		NP		SDP		NP	
	n	%	n	%	n	%	n	%
<i>Request/Suggest Access</i>	10	7	0	0	0	0	0	0
<i>Join In</i>	23	15	10	4	19	19	7	3
<i>Wait and Hover</i>	33	21	8	3	15	15	43	18
<i>Group Activity Related Utterance/Action</i>	31	20	132	54	36	36	94	39
<i>Utterance/Action not Related to Group Activity</i>	19	12	28	11	17	17	53	22
<i>Self-referenced Utterance/Action not Related to Group Activity</i>	8	5	46	19	0	0	15	6
<i>Self-referenced Utterance/Action Related to Group Activity</i>	16	10	13	5	2	2	2	1
<i>Disruption</i>	8	5	6	3	3	3	26	11
<i>Request for Help</i>	3	2	0	0	0	0	0	0
<i>Reference to Rules</i>	0	0	0	0	1	1	0	0
<i>Other</i>	3	2	1	0.4	6	6	4	2

behavior for both groups of participants, it was more markedly so for the children with normal hearing compared with the children with impaired hearing. In addition, this group of participants used the self-related utterance or action related to group activity behavior more frequently than did the children with impaired hearing. The percentage use of three other entry behaviors also was different. For instance, the children with impaired hearing used wait and hover, utterance or action not related to group activity, and disruption more frequently than did the children with normal hearing.

These findings suggest that both groups of children might have been using different entry behaviors depending on the nature of the activity. Chi-square analyses were then conducted to investigate the possibility of a relationship between the distributions of entry behaviors and type of activity for the two groups of participants separately. For the children with normal hearing, a statistically significant association was found between the distribution of entry behaviors and the type of

activity $\chi^2 (9, N = 424) = 111.4, p < .001$. As Table 3 shows, these children used request/suggest access only when attempting to enter sociodramatic play. The percentage use of join in, wait and hover, and self-referenced utterance or action not related to group activity behaviors was greater when attempting to gain access to sociodramatic play than nonplay. In contrast, the percentage use of behaviors categorized as group activity related utterance or action and self-referenced utterance or action related to group activity was greater for entry into nonplay compared with sociodramatic play activities. There also was a statistically significant association between the distribution of entry behaviors and type of activity for the children with impaired hearing $\chi^2 (7, N = 381) = 44.80, p < .001$. For instance, Table 3 shows that the percentage use of join in behaviors was greater when attempting to gain access into sociodramatic play than nonplay activities and the category of self-referenced utterance or action related to group activity was only used for nonplay entry attempts. There was, however, a greater percentage use

Table 4.

The Raw Numbers (and Percentage) of Wait and Hover Entry Behaviors Used by Children with Normal Hearing (NH) and with Impaired Hearing (IH) in Sociodramatic play (SDP) and Nonplay (NP) Activities

	NH	IH
SDP	33 (80)	15 (26)
NP	8 (20)	43 (74)

of disruption in attempting to gain access to nonplay activities when compared with sociodramatic play activities.

To investigate the use of surveillance by both groups of participants for both types of activity, the entry behavior of wait and hover was analyzed separately using the Chi-square statistic. This analysis showed that there was a statistically significant association between the hearing status of the group and the distribution of wait and hover entry behaviors for sociodramatic play or nonplay activities $\chi^2 (1, N = 144) = 28.70, p < .001$. As Table 4 shows, wait and hover behaviors used by the children with normal hearing were more likely to be in the context of entry into sociodramatic play. The reverse was found for the children with impaired hearing.

Table 5 shows the total number of entry behaviors used, the total number of entry behaviors that were successful for both types of activities, and their relative rates of success for both groups of participants. For the children with normal hearing, more success was experienced when attempting to gain entry into

nonplay activities than into sociodramatic play activities. However, the children with impaired hearing showed similar success rates for sociodramatic play and nonplay activities.

DISCUSSION

Children with a hearing impairment have consistently been found to experience difficulties in social interactions with peers who have normal hearing (Lederberg, 1991; Lederberg et al., 1986; Levine & Antia, 1997). Most studies, however, have evaluated the social competence of these children by focusing on their maintenance of social exchange or type of conversational initiations and responses (Antia, 1982; Lederberg, 1991; Vandell & George, 1981). We attempted to add to this knowledge by investigating additional aspects of social competence highlighted in the literature pertaining to both children with and children without disabilities. Specifically, we investigated children's group entry behaviors, their ability to survey ongoing action, and their ability to reference their own behavior to the group. Moreover, these abilities were investigated both in sociodramatic play and nonplay activities.

The results of the analysis of the entry behaviors of the two groups of children showed some interesting similarities and differences between the two groups of participants, however the small sample limits generalization of the results. For example, unlike the participant in the Messemheimer-Young and Kretschmer (1994) study, the *request access* behavior was used rarely in the current study and only by

Table 5.

The Distribution of Entry Behaviors, Successful Entry Behaviors and Percentage Success Rates for Children with Normal Hearing (NH) and with Impaired Hearing (IH) for Sociodramatic play (SDP) and Nonplay (NP) Activities

	NH		IH	
	SDP	NP	SDP	NP
Total Number of Entry Behaviors Used	154	244	99	244
Total Number of Successful Entry Behaviors	45	131	25	63
Success Rate	29%	54%	25%	26%

the children with normal hearing when attempting entry into sociodramatic play activities. Interestingly, both groups of children most frequently used the group activity related utterance or action when attempting to gain access into interaction, regardless of whether the context was sociodramatic play or nonplay. This suggests children with impaired hearing developed a general strategy similar to one used by their peers.

When the distributions of behaviors were compared in both contexts, however, some differences between the groups emerged. In the context of sociodramatic play, for example, children with normal hearing were more likely to use a surveillance behavior or an entry behavior related to the ongoing activity of the group. In addition, they were more likely to use behaviors that brought attention to themselves or provided a partner with information related to the self. Dodge et al. (1983) emphasized that, to gain acceptance into an interaction with peers, it is important to orient oneself to the group's activity and to attempt to construct a link between oneself and the group. It is possible that the surveillance strategy of children with normal hearing reflected their greater awareness of the special nature of sociodramatic play as an activity in which the players invest personally in their ideas and actions and that entry often requires permission from the other players. Further, children without hearing loss may have been more conscious that understanding the script, roles, and meanings of the objects being used is critical to acceptance. Finally, when attempting to enter sociodramatic play the children with normal hearing were more likely to use a broader range of behaviors. It is possible that the ability to select from a wider repertoire of behaviors enables children to be more adaptable if initially refused entry. Despite this, however, the success rates of the two groups of participants in this study were almost equal in gaining entry to sociodramatic play and these were consistent with the results of previous studies involving children with normal hearing (Dodge et al., 1983; Sylva, Roy, & Painter, 1980).

A different pattern of entry behaviors

emerged in the nonplay context. For example the children with normal hearing reduced the range of behaviors to enter nonplay, and they were even more likely to focus their entry behavior on the activity of the group. In contrast, children with impaired hearing were more likely to wait and hover on the periphery of the activity, to use a behavior that was unrelated to the ongoing activity, or to use disruption in an attempt to enter nonplay activities. In this context the children with normal hearing were much more successful in gaining entry.

The analysis of the wait and hover behavior showed that children with normal hearing were more likely to survey the group's activity prior to their attempts to enter sociodramatic play, whereas children with impaired hearing used this behavior as a preliminary to attempting to enter nonplay activities. Children with normal hearing may be better equipped to participate in sociodramatic play activities than children with impaired hearing (Brown, Prescott, Rickards, & Paterson, 1997) and thus may show greater interest in becoming involved in them. Certainly in the current study, this group of participants attempted entry into sociodramatic play more frequently than did the children with impaired hearing, whereas both groups attempted to enter nonplay activities with equal frequency. Sociodramatic play activities are concerned with topics that are not overt, such as roles, scripts, and the pretend transformations of objects. The children with normal hearing clearly demonstrated their understanding of the need to observe and attend to the sociodramatic play behaviors and communications of the group. This would be a more difficult task for children with impaired hearing. Interestingly, this behavior was more likely to be used by the children with impaired hearing in the nonplay context. A possible explanation for this may be that, during these types of activities, the interactional topics may be concerned with events removed in time, space, and context from the "here and now" and, therefore, may require more effort for children with communication difficulties to understand. The increased percentage of wait and hover behaviors of the

children with impaired hearing may reflect their greater uncertainty of the topic under discussion.

In relation to these findings, three points are worthy of mention. First, in keeping with Dodge et al. (1983) and Sylva et al. (1980), children with normal hearing were relatively unsuccessful in entering sociodramatic play and children with impaired hearing were only slightly less successful. It is important that teachers who are attempting to assess social competence of children with impaired hearing understand that success in gaining entry is low for any child. Second, in contrast to the findings of Corsaro (1979), the use of surveillance prior to entry into sociodramatic play seemed to have limited effect in raising the entry success rate. This suggests that entry success in this context may depend on other factors such as pre-existing relationships between children, or that particular entry behaviors may be especially appropriate in this context. Third, success in entering sociodramatic play did not appear to be related to the range of behaviors used. Rather, this relationship between entry behaviors and success in gaining entry was apparent only in relation to nonplay activities. In these activities, the greater success achieved by the children with normal hearing appears to be related to their more frequent use of the strategy of orienting themselves with the group.

Overall, this study suggests that the children with impaired hearing had begun to acquire some skills in orienting themselves to the group's activity, but that they were still experiencing some difficulties in formulating appropriate entry strategies. It is possible these difficulties accounted for the reduced amount of time children with impaired hearing spent in peer interaction, a finding reported by others (Antia, 1982; Lederberg, 1991; Lederberg et al., 1986).

Our results, furthermore, suggest that it may be profitable for teachers to intervene by assisting children in learning to use behaviors that can lead to constructing a social bridge between themselves and the group. Clearly, the ability to survey the group and gain understanding of how children are using mate-

rials, roles, and scripts is a critical step in preparing for entry. Skills such as clarification and negotiation also are likely to be very important in preparing for entry. In addition, aligning oneself closely with the group appears to be a useful strategy for preschool children to develop. Teachers can support children's entry attempts by assisting and encouraging them to consider the nature of an ongoing activity and how they might participate in the activity. For example the teacher could model entry behaviors by suggesting a role for herself or himself or for others, or suggesting ways in which materials could be used. Such behaviors would not require the child to have high levels of oral or linguistic skills. Providing assistance to children with impaired hearing, particularly in the sociodramatic play context with small groups of familiar playmates, may lead to a better understanding of the more abstract forms of participation with peers thereby increasing their involvement in enjoyable and creative social experiences.

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